

71  
845

# CARNEGIE

## MAGAZINE

CARNEGIE  
INSTITUTE

CARNEGIE  
INSTITUTE OF TECHNOLOGY

CARNEGIE  
LIBRARY

JAN 1 1941

VOLUME XIV PITTSBURGH, PA., DECEMBER 1940 NUMBER 7



"CHILD WITH NURSE—ERNESTA" BY CECILIA BEAUX

Lent by Mrs. Ernest Drinker Barlow through the courtesy of  
Mr. and Mrs. Henry S. Drinker

VOTED POPULAR PICTURE IN THE SURVEY OF AMERICAN PAINTING

(See Page 195)

# THE CARNEGIE MAGAZINE

## THE CARNEGIE MAGAZINE

PUBLISHED MONTHLY, EXCEPTING JULY AND AUGUST, IN THE INTEREST OF THE CARNEGIE INSTITUTE, THE CARNEGIE INSTITUTE OF TECHNOLOGY, AND THE CARNEGIE LIBRARY, PITTSBURGH, PA. SUBSCRIPTION PRICE ONE DOLLAR A YEAR; SINGLE COPIES TEN CENTS. ON SALE AT INSTITUTE POST OFFICE, AND THE BOOK DEPARTMENTS OF KAUFMANN'S AND THE JOSEPH HORNE COMPANY.

### OFFICE OF THE PRESIDENT OF THE CARNEGIE INSTITUTE

SAMUEL HARDEN CHURCH, Editor  
DOROTHY NUTTALL, Editorial Assistant

### EDITORIAL COUNCIL

ANDREY AVINOFF ROBERT E. DOHERTY  
MARSHALL BIDWELL RALPH MUNN  
HOMER SAINT-GAUDENS

VOLUME XIV NUMBER 7  
DECEMBER 1940

Every man's conscience is a thousand swords,  
To fight against that bloody homicide.

—RICHARD III

—41—

### THE CARNEGIE INSTITUTE

Hours: Daily 10 A.M. to 10 P.M.  
Sunday 2 to 6 P.M.  
Admission Free

### FREE ORGAN RECITALS

From October to July. Every Saturday evening  
at 8:15 o'clock, and every Sunday afternoon at 4:00  
o'clock.

MARSHALL BIDWELL, Organist

—41—

The Carnegie Institute, in the broadest sense,  
holds its possessions in trust for mankind and for  
the constant welfare and happiness of the race.  
Anyone, therefore, who by a gift of beautiful works  
of art, or objects of scientific value, or a donation  
to its financial resources, aids in the growth of  
these collections and the extension of its service  
is contributing substantially to the glorious mis-  
sion of the Institute.

The Carnegie Institute will be the final home of  
every worthy collection of pictures and museum  
objects when the men and women who have chosen  
them wish to have the world enjoy them.

—ANDREW CARNEGIE

THE CARNEGIE MAGAZINE freely grants permis-  
sion to newspapers and magazines to reprint with-  
out limit the articles that appear in its pages, with  
the usual credit.

## WHO GETS IN THE BOOKCASE?

NEW YORK CITY

DEAR CARNEGIE:

In the November number of THE CARNEGIE  
MAGAZINE, in your editorial, "Can We Have  
Another Golden Age?" you make this startling  
criticism: "Why is it, then, that with the excep-  
tion of Rudyard Kipling's 'Recessional' this  
twentieth century has not brought forth one  
poem that can go in the same bookcase with  
Tennyson's 'Crossing the Bar.'" Here are forty  
years of the twentieth century already expired,  
and you are telling us that only one poem has  
been created in all that time. Have you read  
through the works of the condemned? Of course  
you know the ground, or you would not write a  
sentence of death on some forty American poets.  
For instance, here are some of their names: Edwin  
Arlington Robinson, Robinson Jeffers, Sara Tes-  
dale, William Rose and Stephen Vincent Benét,  
John Gould Fletcher, Vachel Lindsay, Carl Sand-  
burg, Robert Frost, T. S. Eliot, Mark Van Doren,  
Allan Tate, and—don't let me forget—Edna St.  
Vincent Millay. There are many others. Will  
none of them go in your bookcase? Or was the  
Editor nodding when he wrote those fatal words?

—T. C. RYAN

They will all go in the Editor's bookcase; many  
of them are well placed there now. One and all,  
they have produced a noble volume of poetry, and  
nearly all of it is easily readable verse. But here is  
the main question: Do any of them rise off the  
ground? Are not most of them like airplanes that  
will not fly? Isn't it significant that our cor-  
respondent failed to indicate in his courteous  
letter one example from all his honored list that he  
would put in the same bookcase with the Tenny-  
son piece? What is there, now, in the whole range  
of our twentieth-century poetry of which all  
intelligent Americans with one accord would say,  
"This—this—is the equal of 'Crossing the Bar'?"  
There is something fundamental in this question  
that is not brought out in our reader's letter.  
What is the matter with the producing power of  
the American soul? Why is the Metropolitan  
giving us the old operas, year in and year out,  
with their absurd stories and their divine music?  
Once a year, it is true, they do bring on an Amer-  
ican opera, but never for a repetition. Why is it  
that a dozen readers have not told us of a poem  
that would meet this challenge as to Tennyson?  
When great poetry and great music died the spirit  
that produced them also died. Or did it?

### ARGENTINE MUST RHYME WITH VINE

DEAR CARNEGIE:

Will you inform a family circle that is reading  
THE CARNEGIE MAGAZINE. . . what is the correct  
pronunciation of The Argentine? Does the final  
syllable rhyme with queen or vine?

—M. M. REISMEYER

When you speak of The Argentine, you rhyme  
it with vine, never with queen. This accords with  
the universal custom at Washington, including the  
embassy of The Argentine.

## POPULAR PAINTING IN AMERICAN SURVEY

THE appealing study of childhood, tentitled "Child with Nurse—Ernesta" by Cecilia Beaux, Pennsylvania-born artist, was voted the most popular painting of the three hundred and sixty-seven canvases in the Survey of American Painting. The conferring of the Popular Painting title on a work by Cecilia Beaux in a Carnegie Institute exhibition is of particular interest, for Miss Beaux is the only woman ever to win first prize in a Carnegie International. The artist won that honor in the fourth International Exhibition in 1899. The Popular Painting itself was lent to the Institute for the Survey by Mrs. Ernesta Drinker Barlow, of New York, who as a child was the subject for the "Child with Nurse."

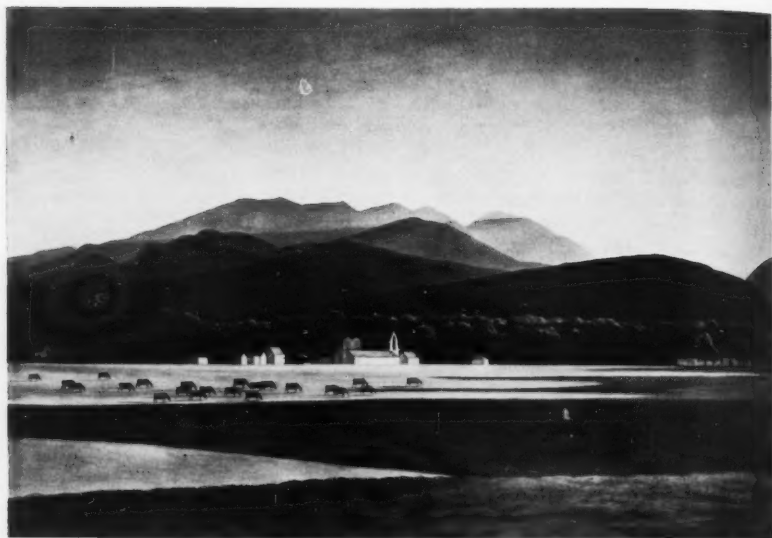
Second to the Beaux painting in the popular vote was "This Is My Own" by Rockwell Kent, a panoramic view of the artist's farm at Ausable Forks in northern New York. Closest competitors to these two leading canvases, in order of preference, were: "Line Squall" by Frederick J. Waugh, who won the popular award in Carnegie Internationals for five consecutive years from 1934 through 1938, and who died only a few weeks before the opening of the Survey; "The Old Violin" by William Harnett (1848-1892); "The Guardian Angel" by Lauren Ford; "The Eternal City" by Peter Blume; "Breaking Home Ties" by Thomas Hovenden (1840-1895); "Portrait of Mrs. Thomas Boylston" by John Singleton Copley (1737-1815); "Penelope" by Audrey Buller; and "Persephone" by Thomas Hart Benton.

Every painting in the Survey of American Painting was eligible for consideration in the vote for the most popular picture. Because the majority of the paintings in the exhibition, however, were by deceased artists, no prize was offered by the Fine Arts Committee. The

naming of the Popular Painting was based on the votes of visitors to the Survey of American Painting from November 24 to December 8, inclusive. Each visitor during that period was given a ballot, and was asked to vote for the painting which he considered the best in the entire exhibition, according to his own taste and standards of criticism. The approval of voters was extended to many canvases in both the retrospective and contemporary sections of the exhibition, though an analysis of the entire vote revealed a considerable preference in favor of paintings by contemporary artists.

The Popular Painting, "Child with Nurse," which was done in 1894, is a study in grey and white and an example of very skillful handling of a difficult problem in color. Its treatment is broad with the exception of the face of the child, which is painted with delicate detail. It shows a small dark-eyed, dark-haired girl of perhaps two years of age walking with her nurse. The latter is suggested only through the firm competent hand holding that of the child, and the lower part of a starched uniform and apron. The little girl wears a white frock, with ruffles at the neck and wrists, the long skirt falling from the baby yoke almost to the ground, allowing just a glimpse of her feet. A single touch of color is supplied by the pink of the piqué hat on her head. Movement is cleverly suggested by the swing of the skirts of both nurse and child. The painting is one of the finest of Cecilia Beaux's child portraits, a field in which she was particularly successful. It was one of the three canvases by her which were hung in the first Carnegie International in 1896, and it was awarded third prize in that exhibition.

Cecilia Beaux was born in Philadelphia in 1863. Her father was French,



THIS IS MY OWN BY ROCKWELL KENT

Second by Popular Vote in the Survey of American Painting

and her mother of New England ancestry. She had her first lessons in drawing from an aunt, and then studied in Philadelphia with the Dutch artist, Adolf Van der Whelen, and with William Sartain. After a brief later period of study at the Pennsylvania Academy of the Fine Arts, she went abroad, where she worked at the Julian and Lazar academies under such masters as Tony Robert-Fleury, Bouguereau, Benjamin Constant, and Dagnan-Bouveret. After two years of European training, Miss Beaux returned to America and opened a studio in Philadelphia. Her success was almost immediate, and before many years she found it necessary to maintain a second studio in New York City. During a brilliant career, Miss Beaux has had as portrait subjects some of the most noted personages of our times, including Theodore Roosevelt, Cardinal Mercier, Georges Clemenceau, Lord Beatty, and many others. In 1902 she was elected a National Academician, and was also made Sociétaire of the Beaux Arts in Paris—a rare honor for a

woman. She has won almost every award available to an American artist, and is represented in most of the important public and private collections in this country, as well as in the Luxembourg in Paris and the Uffizi Gallery in Florence. Her portrait of Mrs. Andrew Carnegie is in the permanent collection of the Carnegie Institute. For a number of years Miss Beaux has divided her time between New York City and a summer home, "Green Alley," at Gloucester, Massachusetts.

The custom of voting for a Popular Painting at Carnegie Institute exhibitions was initiated in the International of 1924. Malcolm Parcell, of Washington, Pennsylvania, was the winner that year and again in 1925. Other winners were Leopold G. Seyffert in 1926, Gari Melchers in 1927, Edmund C. Tarbell in 1928, James Chapin in 1929, Leopold Seyffert for the second time in 1930, Alessandro Pomi in 1931, Daniel Garber in 1933, Frederick J. Waugh in 1934, 1935, 1936, 1937, 1938, and Luigi Lucioni in 1939.

## CARNEGIE DAY EXERCISES

THE annual observance of the birthday of Andrew Carnegie was celebrated on November 26, 1940, by the Carnegie Institute of Technology with a most interesting program in the Carnegie Music Hall, in which its faculty and student body actively participated.

The addresses of the day were made by Dr. Robert E. Doherty, President of the Carnegie Institute of Technology, and Charles Erwin Wilson, Acting President of the General Motors Corporation, and a graduate of Carnegie Tech, class of 1909. The speeches follow in that order.

## COMPLACENCY IN CONFUSION

By ROBERT E. DOHERTY

*President, Carnegie Institute of Technology*

Most people live in a state of complacent confusion. College students and graduates are no exceptions. How many of them, for instance, have only a vague and confused notion of the fundamental principles of their professional study or practice; how many of them are content to live without a clearly thought-out philosophy of life; how many of them are inclined to think with their emotions instead of with their minds; how many, disillusioned by events of the past decade, are intellectually lost and assume the role of the cynic; how many, I ask, thus bear their own evidence of confusion? I believe you will agree with me that the number is discouragingly great.

The consequences of complacent confusion are serious. If these consequences were personal only, if they were merely the unrewarded personal careers, or the travail of minds that see no way out of new and trying situations, or the sterile satisfactions that go with intellectual poverty, they would be serious enough. But the consequences do not end there. They become national in scope when confused minds decide matters of destiny, for our democracy rests full-weight upon the proposition that the people are competent to determine their destiny. If they depend upon leadership, as they

must, and leadership is confused, the consequences in national and local community life must be devastating, and indeed they have been devastating. And by leadership I do not mean federal leadership alone. It is only a part of the whole. I mean every policy-making body or policy-making person in the country, whether in business, industry, education, or government. The general direction of flow of national and community life depends upon the general policy pattern constituted of all the individual policies of these agencies, and the people must accept that flow of life. Hence the consequences of confusion may strike you on two serious counts. They may strike you personally and professionally if you elect to join the large ranks of the confused, and then you may continue to be the victims with all the rest of us of confused leadership. You thus have a definite and direct personal interest in this matter, and also a very important interest as a citizen even if this may appear to you less direct. And my purpose this morning is to help you recognize your interest and to encourage you to do something about it. I realize that the immediate direct personal interest is, from your point of view, probably a more convincing basis for my appeal to you, but since the general social interest

is not less important to you, I wish to pursue it further.

In the confused and demoralized world in which we now live, and which will certainly become more confused and more demoralized, there is a great challenge to the college students of America. It is the challenge to become intellectually prepared to deal with such a world, to meet with intelligence, courage, and confidence the new and trying situations which rapid changes are now bringing about. In such a world, which will be the world of your generation, life in America must be profoundly affected. National life will be difficult. Individual life will be difficult. The formulas of day-to-day contemporary life won't suffice because many of them won't apply to the new situations. New formulas must be thought out, and in this thinking there must be a return to the very fundamentals of science and living. There must be a clarification of basic philosophies—personal, professional, social. There must be clear, straight thinking. And to have these there must be genuinely educated people. Walking encyclopedias and handbooks will accomplish little. College graduates who have learned only the routine skills and formulas of their work, will be intellectually lost in a world of new problems and thus will be ineffective in determining either social or individual destiny. There must be an intellectual renaissance, and that is your challenge.

I have mentioned confusion and its consequences and how I find these related to your own interests. I wish now to consider with you the question of why in a nation of incomparably great educational opportunity there should be such pervasive confusion; why it is that the experience of sixteen or eighteen years of formal study, especially the period of college study, does not cultivate in more students a deeper understanding and a greater intellectual competence? And after I have considered this question, I shall indicate more fully the nature of task you will

face if you set out in earnest to cultivate your own mind to its full capacity.

Does the habit of confusion and superficiality among so many college graduates stem from an inherent lack of intellectual capacity? Many times I have heard this given as the reason. But my personal experience with students and large numbers of young graduates does not confirm this defeatist view. Now I know it is a long hard struggle for most of us really to learn the art of constructive thought, but I know too that many of us have more capacity for understanding and for intelligent thought than are given credit for having it. In college we may be slow in getting our thinking gears in mesh, and if, while we are trying to get them in mesh the external machinery of classroom procedure moves too fast, the gears get stripped. Then disorder and confusion result. However, with a little more patience and a little more emphasis at the right points, more of us might have got our mental machinery into gear, and successfully made the shifts until we got into high gear. No, I do not accept the view that inherent limitations of mind fix the intellectual achievements of college graduates at their present levels. We all have our own limits, of course, and these are not the same for everybody; but I am convinced there is still good leeway between actual and potential intellectual achievement. So we must look elsewhere for the trouble.

I have already hinted at it. We strip the gears. The trouble is that too much is undertaken in the time available. In the modern curriculum there is so much subject matter to be covered that few, if any, students can in the time available cover all of it with understanding. The result is that they do not understand much of what they have covered, or only partly understand it. They come to depend more and more upon memorizing, and less and less upon understanding. This process of racing through, with one eye on the next quiz, pages of words and formulas with half under-



standing or no understanding is utterly demoralizing. It is repeated in American colleges day after day, month after month, year after year, until superficiality becomes a habit, until confusion becomes accepted as a normal state of mind. And with such a habit firmly established in college, it naturally persists afterward; and thus confusion and superficiality mark the minds of too many graduates. And that, fellow students, is the trouble.

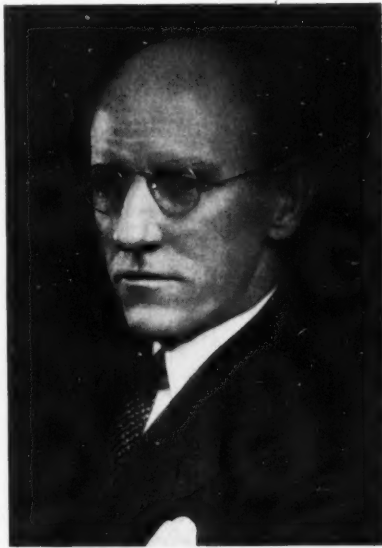
It is therefore a deplorable fact that the college diploma is usually not a certificate of a cultivated mind. Rather it may signify only that the graduate has acquired the requisite number of credits by meeting the course requirements of grades, lessons, and attendance. And the meeting of these requirements is no guarantee of intellectual competence in the sense that I am

stressing. The work may have been fully done and good grades received and still the diploma might not be a certificate of a cultivated mind. I mean a mind that can cope with new situations, a mind that can intelligently find its way out of perplexities, whether these be professional, personal, or social, and that has the capacity of humane appreciation. The test for identifying a cultivated mind is to face it with perplexities—to face it with new situations not in the books but involving principles and knowledge which that mind has studied. Then see how it behaves. Does it grab for straws, does it become emotional, is it evasive, does it give up? Or, on

the other hand, does it try to anchor to principle, does it have a philosophical base for its thought, has it essential knowledge, however limited, that will give meaning to its principles and to its philosophy, and can it think logically in applying all of these to the understanding and solution of the new situations with which it is faced? Or, I might state the point in still different words.

An educated person is one whose intellect has been cultivated in the processes of understanding, of thinking, of appreciating, of solving perplexities; and the only way yet found that I know of cultivating these processes is actually to engage in them, to experience them, and to keep on experiencing them at increasing levels of difficulty. Thus, the question whether at commencement you, and indeed all other college graduates, will have achieved the status of edu-

cated persons will not, I am afraid, be answered completely by the fact that you and they have received diplomas. Moreover, neither will the extent to which you have approached that status be necessarily measured by the number of courses you have taken, nor yet infallibly indicated by your grades. But you can measure it. You can tell whether you understand thoroughly what you have studied, whether you have grasped great truths and worked them into your thinking so that as time goes by you can think your way out of situations and problems of increasing difficulty. You can know your own mind. Don't rest upon the assumption



ROBERT E. DOHERTY

that a college diploma tells the whole story. It does signify that you have completed a college program, and it may also be a ticket to a job, but it is not a ticket to the ranks of intellectual competence or to a successful career.

I am trying to have you grasp what I consider to be the most important thought in your educational career. It is this: that genuine education—the only kind of education that will help you advance professionally and that will help you live a life of service and satisfaction in a changing world—is not to be achieved merely by memorizing large quantities of miscellaneous information; it is not to be achieved merely by learning formulas, important as many of these may be; still less is it to be achieved by memorizing the words or the symbolisms of such information without understanding what they mean. It is to be achieved only by the acquisition of fundamental knowledge that is thoroughly understood and by the development of a purposeful attitude of mind and of a competence in thinking your way out of perplexities.

I realize I am on delicate ground. I run the danger of suffering your judgment that I indulge in pedantic counsel to you, and the faculty's judgment that my appraisal may be too pessimistic. I hope that I may not deserve such judgments; but if I seem to, may I ask that before the judgment becomes final, you at least think over carefully what I say and place it against the background of the world changes that you see on all sides of you.

In any case, don't misunderstand me. Memorized information and formulas are of course important, indeed they are essential, but only so if they are thoroughly understood and furthermore are related in your own mind to a definite intellectual purpose. Then they cease to be miscellaneous information and become knowledge. For instance, it is futile to learn, however perfectly, the language of Newton's laws of motion unless the significance of the language is clearly comprehended in its

relation to the tangible physical facts which these laws correlate; in other words, unless one can visualize and interpret a physical situation involving these laws.

Let me be more specific regarding the nature of genuine education as I conceive it. I will discuss four essential elements which I have already mentioned in passing. The first is the acquisition of fundamental knowledge; that is to say, the learning and understanding of great basic truths and of a sufficient background of related fact to give definite and constructive meaning to those truths. And as great truths I include those in the physical world, in the social and economic world, and in the realm of the human spirit. There are not many of them. I refer to such principles as the law of conservation of energy, the law of diminishing returns, the principle underlying the Golden Rule. There are of course hundreds, perhaps thousands, of principles and formulas derived from such basic truths, much as the numerous theorems of geometry are derived from a few fundamental premises; and then there are perhaps a few hundred more based on somebody's opinion. But it would be both hopeless and futile to undertake to learn all of them. One must discriminate between these and the great truths that form the bedrock of intelligent thought.

A second element is the development of a philosophy of life. This is a long process. It is settling upon basic purposes and attitudes in life and the reasons for them; it is placing the indispensable underpinnings of faith and courage and self-confidence. It is a continuing building process—the process of testing against the experience of your own life and the recorded life of others those purposes and attitudes that are tentatively adopted, and of thus selecting and fitting in, piece by piece, the structural units of a life purpose. For instance, one important and immediate unit in this structure with which you are now presumably con-



cerned is professional purpose. I do not mean the specific details and place of your future work, but the broad lines of professional activity that now seem to offer the greatest promise of those satisfactions which, after careful thought, you have come to cherish.

Next I mention humane appreciation. A mind or life that shuts itself off from an understanding of man as a human being; that shuts itself off from an appreciation of the desires and disappointments, the yearnings and satisfactions that motivate human activity; that shuts itself off from an appreciation of the literature and arts through which the human soul has attempted to express itself—such an isolated mind or life is only half human, and therefore not genuinely educated.

And finally I come to intellectual competence. Without this competence, the other elements I have mentioned—fundamental knowledge, a philosophy of life, and humane appreciation—would represent merely passive satisfactions. Such satisfactions are of course important fruits of education. But they do not constitute a whole; they are complementary to another fruit—the fruit of constructive thought. And to achieve this competence in thinking one's way out of perplexing situations is to round out that genuine education which I am urging upon you.

Do you want that kind of an education? Do you wish to prepare for keen competition? Do you wish to preserve your precious liberty of thought, speech, and worship?

If you want these things you can have them, provided you pay the price. I doubt that the price is any higher than you are now paying, for I know most of you are already working hard. But it is a different kind of price. It is the price of taking the initiative in your educational work. This demands of you greater resolution than does merely following the regimen of class work. It requires greater devotion to purpose.

No one can possibly do this educational job for you. The assumption

that the instructor can do it for you is the basis for more educational confusion than any other I can think of, save one, namely—the assumption that education is achieved by memorizing a lesson merely in order to report it back on a quiz and get a grade. A recent definition, if I may be facetious, is that education is the process by which the instructor's notes get into the notes of the student without passing through the brains of either. No, the kind of education I am proposing can't be given to you; you must win it by hard intellectual struggle in which you take the initiative. The faculty may inspire you to intellectual effort, but you must exert it. The faculty can help you to understand, but you have to do the understanding. The faculty can coach you in the art of logical thought, but you must do the thinking. And the faculty can help you to cultivate good taste and humane appreciation, but you have to do the cultivating. Every time you struggle with a new concept and master it—for instance, a physical law, or an economic theory, or a concept of art—you will have made an educational advance, you will have added to your intellectual stature. And furthermore, every time you make use of such a law or theory or concept to think your way out of a perplexity or to experience a new appreciation, you will have achieved another and further intellectual advance. But in both cases you must do the job. You, not the coach, must carry the ball.

So I urge you to take the initiative and learn to use your heads. In the first place, dig yourself out of confusion. Insist on understanding! Do away with superficiality! Stop memorizing words and formulas that you don't understand, merely for a grade. Don't go on cultivating a habit that will cripple your mind for the rest of your days—the habit of superficiality, the habit of accepting confusion as a normal state of mind, the habit of playing on words that carry no meaning. You know when you understand and when you don't;

when you grasp a point that is clear and clean cut and when, instead, it is blurred and confused. With all the emphasis in me I repeat: insist on understanding! Then, under the guidance of the faculty in your regular class programs, but under your own initiative, you will be in position to go forward

more effectively and more rapidly with the acquisition of great truths, the evolution of a philosophy of life, the cultivation of humane appreciation, and the development of intellectual competence—in other words, a genuine education gaged to the demands of the changing world in which you will live.

## GREETINGS FROM THE ALUMNI

BY CHARLES ERWIN WILSON

*Acting President of the General Motors Corporation*

[Upon Mr. Wilson's introduction, the student audience arose in an enthusiastic appreciation of the boy who has today come back to his home town after having made good in the outside world.]

I AM very happy and pleased to be here today and to take part in a Carnegie Day program. A little over thirty-one years ago, when I graduated from Carnegie, I received my diploma from this very platform. I have also had the pleasure of seeing Andrew Carnegie, himself, and hearing him speak from this same platform. Such memories make me feel a little old, but when I look into the faces of you undergraduates and sense the high hope, enthusiasm, and courage you have, I seem to absorb some of your fine spirit, too. I am indeed glad to be here.

Sunday my oldest son Tom and his wife were having dinner with me. He graduated from Dartmouth and from the Law School at Michigan. I was telling them about my contemplated trip to Pittsburgh, and that I was going to speak at the Carnegie Day exercises, and particularly to the undergraduates here today. He said, "Dad, what are you going to say? Are you going to give them an 'I done it' speech?" When I am through, I hope none of you will feel that way about it.

Ever since President Doherty invited me to speak today, I have been wondering what I could say that would be reasonably interesting to all of you, and especially to you undergraduates. I remembered a conversation I had with a friend of mine a couple of months ago,

and I decided that I would use this conversation as a basis of my remarks today.

My friend and I were discussing the problem of educating young people, and particularly our own children. We were talking about the problems of the schools and colleges in presenting the necessary courses to equip young people for useful work in our present-day world, so that they might reasonably expect to have useful and happy lives. Since I am fortunate in having three sons and three daughters, the problem for me is a very real one.

During our talk we mentioned how difficult it is for young people to decide on what courses to take, and how hard it is for them to develop sufficient perspective so that they, themselves, can have a definite idea of what they would really like to do. I finally made the statement that if I could tell my children about five things or state five principles, so that they could understand them and believe them, it would make little difference to me what courses they took, or even what school or college they attended—of course, if the boys wanted to be engineers, I would think they should go to Carnegie—and that if they understood and believed these principles, and would be guided by them in their future actions and activities, I would feel reasonably sure that they would have happy and useful lives.

## THE CARNEGIE MAGAZINE

Several days later my friend asked me what those five principles I mentioned the other day were, so I attempted to state them, and I will give them to you.

The first is importance of self control, or the necessity of developing will power and determination so that you do the things you want to do, or should do, rather than being controlled by your immediate environment and impulses of the moment. If you

know you are smoking or drinking too much, can you deny yourself for your own future good? If you are tired and sleepy in the morning, can you get up and get to work on time? Do you study your lessons when you know you should, or do you put them off to listen to the radio or read the funny papers? If you have not learned to control your own activities, in other words, "Be Your Own Boss" rather than let circumstances dictate to you, you can hardly expect to be placed in charge of the activities of others and direct them in their work or be competent to guide any form of social or political activity.

A part of every formal course in education is designed to help the student acquire habits which will, in part, help him to stick to the right course rather than be dominated by his environment and the desires of the moment.

The second is the desirability and necessity of developing a tolerance of other people and of the opinions and activities of others, and along with this must be the willingness to use the same measuring stick on your own activities

and actions as you apply in appraising others.

In our modern society, where we are so dependent upon each other, where so much is accomplished by group effort, this point is particularly important, and sports and other college activities not in the regular curriculum help to develop this characteristic.

My third point is the proper respect

for truth and fact, or, in other words, the scientific approach to a problem rather than the dogmatic or superstitious one. This calls for rational rather than the emotional approach to all kinds of problems, and a realization that truth and fact will prevail, especially where the truth and facts can be developed and understood by people. One of the principal things a young engineer really learns in dealing with the laws of Nature is that the truth and

facts must be reckoned with.

The fourth in my series is the importance of keeping promises and commitments. Our modern business world and most of our relations in our modern society are based on confidence, and people are judged, perhaps more than most of them realize, on this point. People are really judged not only for what they do, but for what they do as compared to what they have promised to do or stated they could do. People also have responsibility to others of carefully appraising any commitments they may make, as it is almost as bad to make promises that you have little or no chance of keeping as it is to make



CHARLES ERWIN WILSON

promises that you do not intend to keep.

The fifth principle is a willingness to work and a realization that to work is a normal part of living. To work is a reasonable part of any happy and useful life, and not merely the "means to the end." Along with this point of view should go the realization that, on the average, each of us should be willing to make a social contribution in proportion to the social reward he expects, and that on the average, this is about what is likely to happen to each of us.

After attempting to state these five things, or principles, which I would like to be sure my children learned and understood, I thought of another one which I finally decided should be added to make a sixth: The importance of not being licked—of being able to maintain your morale. In other words, to make the best of things and to push ahead with the Adventure of Life, in spite of upset plans and temporary disappointments. Some people seem to be so upset by a rainy day, when they had hoped for sunshine, that the day is practically ruined. They do not seem able to change their plans and still make progress when unexpected things occur.

The spirit of not being licked, of realizing that life is an adventure which cannot be planned in complete detail, a willingness to play the game and still enjoy it, even though the rules are not to your liking, or if your position on the team is not perhaps the one you, yourself, would choose, suggests what I mean by this sixth point or principle.

It seems like a long time since I was a student at Carnegie, and there certainly have been many important changes, not only at Carnegie, but in our whole country during these thirty odd years, but I am sure these six points will be just as important in the next thirty years, or under any conditions which may come about, as they have been in the past thirty.

#### WHY WERE YOU BORN?

Man is born to be a citizen.

—ARISTOTLE

## FALK FOUNDATION LIBRARY GIFT

A LIBRARY dealing with economics and related social sciences collected by the Maurice and Laura Falk Foundation has been presented to the Carnegie Institute of Technology by the Foundation, which previously endowed the Maurice Falk Chair of Social Relations now held by Professor Willard E. Hotchkiss.

The announcement of the gift said in part: "Students enrolled in the department's courses require library facilities beyond those now available at the Institute. In consideration of this need, the trustees of the Falk Foundation authorized the transfer. The foundation expects to continue to collect books on economic and related social problems and from time to time these will be transferred to Carnegie Tech to serve the Maurice Falk professorship."

## CARNEGIE TECH ENROLLMENT

ENROLLMENT this fall, which might have been expected to decline in view of defense activities and the increase in tuition, showed very little change. Day-school figures show a total of 2,366 for 1940 as compared with a registration of 2,386 for 1939. While there was a slight decrease in the number of freshmen, this was compensated for by the larger number of former students returning to the upper classes and by the entrance of advanced-standing students. The enrollment for evening school shows a definite increase over 1939, with 3,005 as compared with last year's 2,886.

#### PROGRAMS FOR CHILDREN

Free Motion Pictures for Children are shown at 2:15 P.M. each Saturday in the Carnegie Lecture Hall, from November to March, inclusive. The films are especially selected—nature, industry, travel, full-length features, and comedies.

At 3:00 P.M. each Saturday there is a Story Hour in the Boys and Girls Room of the Carnegie Library, to which all children are invited.

## THE ROMANCE OF A MOOSE

*Superb Head Presented to Carnegie Museum by Richard K. Mellon*

By J. KENNETH DOUTT

*Curator, Section of Mammalogy, Carnegie Museum*



MR. RICHARD K. MELLON has presented the Carnegie Museum with a magnificent moose head that is entitled to rank among the world's finest specimens. Its early history is obscure, but if we could look

back through nearly half a century of hunting lore and there find the story of this unusual head, as Indian tradition has preserved it, we should hear a story well worth the telling.

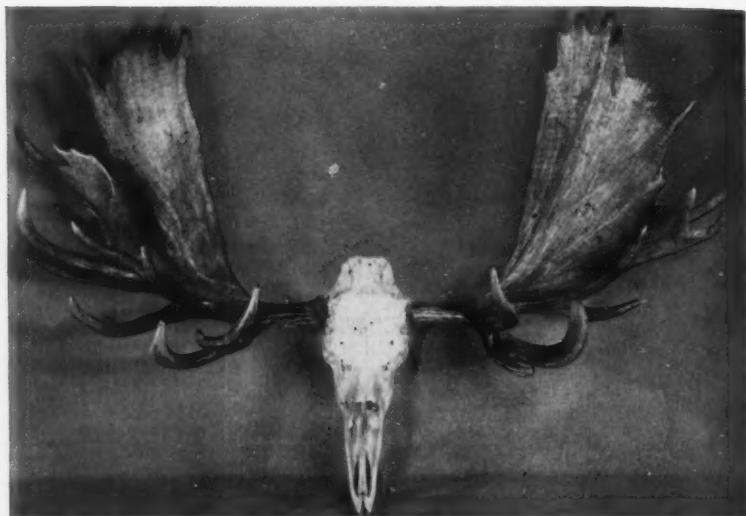
Winter had come early to the Kenai Peninsula. A light blanket of snow spread over the valleys and filled the crevices along the ridges. The silence of the early winter morning was broken only by the twitter of the redpolls as they pecked the seeds from the tall weeds standing above the snow. Then from far up the valley came the intermittent plaintive call of a female moose for her mate. A bull answered her several times and finally appeared on the skyline. He was seven feet high at the shoulders, and as he crashed down the mountainside, he slashed at the saplings with his antlers, eagerly pushing them aside. His huge rack of horns was unusually large even for a bull in the prime of life. His sleek black coat glistened in the morning sun, and as he reached the open meadows of the bottomlands he broke into the long easy pace so characteristic of the moose. At intervals he heard the call and each time he answered with a deep bellow.

Suddenly, from over the opposite ridge the bellow of another bull moose

was heard. The black giant quickened his pace toward the glade. From the other side of the brush a big bull advanced, dug his antlers deep into the moss, and showered himself with dirt and leaves. For a few minutes the two bulls sparred, then with an angry rush they came together. The clash of antlers could be heard for a mile down the valley. No one knows how long they fought, but the brown bull, somewhat older than the black, had passed his prime. The broad branches of his antlers lacked the sharp tines of those of his younger adversary, and, though the old one was heavier, the young bull had the advantage of a broader rack and greater agility. At last the brown bull's age began to tell. Twice he staggered to his feet after an especially furious onslaught, but at last, during a breathing spell, he tossed his head haughtily in the air and paced off down the valley. He had lost the fight. The victor followed his enchantress slowly down the other slope. She, too, was a magnificent moose, with a long glossy bell and a fine thick coat.

These superb specimens of the majestic moose were the parents of a moose calf which was born on the Kenai Peninsula about the change of the century.

The grazing was unusually good on the Kenai during the next few years, and this young bull grew rapidly. He became known among the Indians for his size and sagacity, as well as for his ability to avoid them. At the age of five he was as large as any of the bulls on the Peninsula, and, though somewhat younger, he fought them as their equal. In one terrific battle that ensued, a thrust from the long sharp tine of an antagonist plowed a deep groove in his forehead, just beneath his antlers.



THIS RECORD HEAD IS AMONG THE LARGEST OF THE  
KNOWN SPECIMENS IN NORTH AMERICA

He sank to his knees and rolled over unconscious. For hours he lay in a pool of blood, apparently dead. With the following dawn, however, he began to recover consciousness and soon was able to rise and wander away. It was more than a year before he recovered completely from the injury, but gradually his strength came back, and with it his courage.

Indian Joe was one of the best hunters of the region, and from his father who had come from the East he had learned the trick of moose-calling. He boasted among his friends that he was going to get that big black moose, known to them as "Windigo." When Joe made this boast, the moose was about eight years old, and even though he had been in several battles and had had the tips of several prongs broken from his magnificent rack, he had successfully defeated every adversary and was in fine condition.

When the mating season came around that fall, Indian Joe made a moose horn. With this horn and a very light outfit, he went off alone into the country

where the big black bull was known to live. He camped near a huge boulder overlooking a wide marshy valley and began his calling. Several bulls answered his calls, but Windigo was not among them. Then one evening, almost a week after Joe had come to the back country, a light snow fell. At dawn he was off searching for a sign of the big moose. All day long he searched without success, but early in the afternoon of the second day he came upon old tracks that he suspected were those of Windigo. He followed them all that day and part of the next to a long point that jutted out into the valley and rose high above the rest of the country. He had been there only once before, when, as a well-grown boy, his father had shown him the heart of the moose country. Up on this high ledge he climbed with his horn and sent out a long, low mating call that resounded through the forest. At last he heard a moose crashing through the brush. He climbed down from the pinnacle and mounted a large rock that had broken away from the cliff, and there con-

rinu  
appe  
was  
saw  
fines  
raisin  
admi  
Wind  
ceivi  
fired.  
antle  
madl  
twice  
rock  
spurt  
foll  
tain  
come  
other  
track  
and  
circle  
of W  
keep  
self  
rapid  
on it  
thud  
It  
snow  
a fire

THE



tinued his calling. When the moose appeared, scarcely fifty yards away, Joe was amazed at the size of the antlers he saw before him. They were by far the finest he had ever seen. He hesitated in raising his rifle and stood for a moment admiring the huge beast. Then, as Windigo stopped to listen for the deceiving call, Joe leveled his rifle and fired. The startled Windigo tossed his antlers in the air and went dashing madly through the trees. Joe shot twice more, and, climbing down off the rock, found the trail well marked by spurts of blood. For nearly an hour he followed down through the valley, certain that the quarry for which he had come so far was soon to be his. Another mile down the valley, and the tracks gave evidence of a slackened pace and staggering gait. Cautiously he circled the trail and came to the scene of Windigo's last stand. In an effort to keep alive, the big bull had braced himself against a sapling, and weakening rapidly, leaned more and more heavily on it until at last it and the moose came thudding down together.

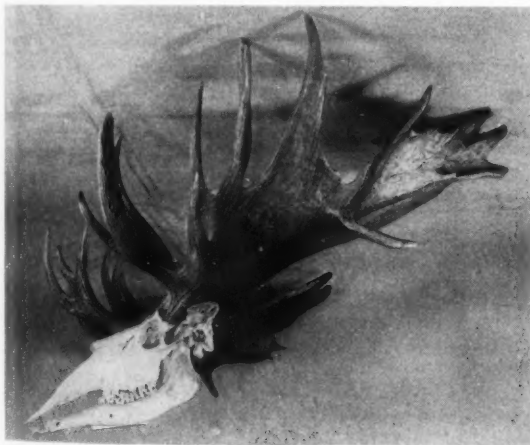
It was almost dark and a thick wet snow was beginning to fall. Joe built a fire, then hurriedly skinned the moose

and ate his supper from the fresh steaks of his victim. The next morning he made himself a large toboggan from two straight spruce trees. Leaving the body behind, he took the head and antlers into the village as proof of the proud fact that he had killed Windigo. Two or three days later he and two of his friends made the long trek to Seward with their trophy, and there Judge Smith, of the local court, bought it as a specimen of extraordinary size.

In 1909 this now-famous moose head won the gold medal at the Alaska Yukon Pacific Exposition held in Seattle, and it was there, at the entrance to the Alaska Building, that Mr. E. C. Bellwood, of South Richmond, Virginia, first saw it. It was then owned by Judge H. H. Hildreth of the Probate Court of Seward, Alaska, but he sold it to Mr. Bellwood the following year. Mr. Mellon purchased the head for the Museum from Mr. Bellwood. An examination of the teeth and general features of the skull reveal that it was the head of an unusually well-developed moose in the prime of life. We also know from the deep scar in the bone of the forehead that it had received a serious wound some years prior to its

death; and the broken tips on the antlers and the tine marks on the palms, or broad flat part of the antler, reveal that the moose was engaged in a fierce battle with another bull shortly before it was killed.

The significance of this remarkable head can be appreciated best, however, by an understanding of its place in the world of horned and antlered animals. Antlers are found only in the deer family, so we need look nowhere else for comparative material. The amount



THERE ARE 46 TINES ON THIS MELLON MOOSE HEAD—THE LARGEST NUMBER ON ANY KNOWN SPECIMEN.

of organic substance produced and shed each year by some members of this group exceeds that produced in their entire lifetime by any of the horned animals, such as cattle, antelopes, and sheep. Fifteen different kinds of deer are known, and of these fifteen, the moose is by all odds the largest and carries the widest spreading antlers. Five different subspecies of moose are known, one occurring in Europe, one in Asia, and three in North America. Of these five races, the Alaska Moose (*Alces gigas*) is unquestionably the largest.

The book "North American Big Game" lists ninety-five sets of antlers of the Alaska moose that have a spread of sixty inches or more. Of these ninety-five specimens, there are five which have the first distinction of size, and the Mellon head is one of them. Another head, acquired by the American Museum of Natural History in 1939, surpasses it in greatest spread by two and five-eighths inches, but the measurements listed for it were taken before it dried out. No one knows how much a moose head will shrink as it dries, but that it will shrink is certain.

Another fine specimen belongs to the Field Museum of Natural History, in Chicago. It, like the Carnegie Museum head, has been drying for more than thirty years and no doubt has shrunk as much as it ever will. Compared with the Field Museum head—which is of comparable age and shrinkage—the Mellon head is only one and one-half inches less in greatest spread, and in other measurements it suffers even less. No weight is available for the head in the Field Museum but the new head in the American Museum weighed sixty pounds. The head presented by Mr. Mellon weighs eighty pounds, and it must have weighed considerably more at the time when the animal was killed. In number of points it outranks any of the others. The differences in the spread of any of these first five heads are too small to be recognized by the eye and can be detected only by careful measure-

ment. Even if larger heads are discovered in the future it is doubtful that they will surpass these measurements by any great margin. Since no other animal now living has antlers as large as the moose, and these antlers are among the finest ever discovered, it seems reasonable to say that these are among the finest antlers in the world.

## MUSEUM LECTURE SERIES

THE Museum Lecture Series will be given each Sunday afternoon at 2:15 o'clock in the Carnegie Lecture Hall, beginning January 5. On that date Major James C. Sawders will speak on "Mountain Republics of Peru, Ecuador, and Bolivia." Subsequent lectures will be given by various staff members of the Carnegie Museum, beginning on January 12 with a talk by A. C. Twomey on the subject, "Under Southwestern Skies."

The talks will continue until February 23 and will be illustrated by colored slides and moving pictures.

## APPLIED SCIENCE AND OUR WORLD

Science has unfolded in our time a matchless vision of human felicity, but for the second time in a brief quarter-century we are riding the storm in a blackout of terror; general frustration is chronic. Technology, the offspring of science, is turned to the service of oppression, brute force, and destruction. How to rededicate this Machine Age to human progress baffles its creators, the scientist and the engineer, as it does the social scientist, the statesman, and the man in the street.

—WILLARD E. HOTCHKISS

[Maurice Falk Professor of Social Relations]

## THE WORDS OF GENIUS

Words, when well chosen, have so great a Force in them, that a Description often gives us more lively Ideas than the Sight of Things themselves. The Reader finds a Scene drawn in Stronger Colours, and painted more to the Life in his Imagination, by the help of Words than by an actual Survey of the Scene which they describe. In this case the Poet seems to get the better of Nature; he takes, indeed, the Landskip after her, but gives it more vigorous Touches, heightens its Beauty, and so enlivens the whole Piece, that the Images which flow from the Objects themselves appear weak and faint, in Comparison of those that come from the Expressions.

—JOSEPH ADDISON



## THE GARDEN OF GOLD



MANY men and women whose names carry the burden of fame are visitors to the Carnegie Institute each year, and they are invariably received with the respect and attention which their achievements deserve. But the group which ranks highest in the planning of this administration is comprised of the children of the Pittsburgh school system. It was not always so. In the early years of the Carnegie Institute there was no provision for the objective teaching of children in the arts and sciences. The paintings were hung in the art galleries, and the Museum objects were displayed attractively in the cases. There they were, and the grown-ups were cordially welcomed to behold them and to form their own interpretations of them; but the children came only in small numbers, and when they came they often gazed with lackluster eyes on things which needed only a knowing voice to stir their interest to the highest reach.

At this point it was seen that the cultivation of the most precious part of our community—namely, the minds of our children—had not yet been sufficiently organized to fit into the general scheme of the Institute's educational policy. It was then proposed to the Pittsburgh Board of Education that a broad plan of co-operation should be established, comprising the children from all the Pittsburgh schools—public and parochial—and that curator and teaching service should be assigned for the instruction of these youthful students every day in the year, even including their optional attendance upon the Sunday afternoon free lectures. The Board of Public Education generously granted a yearly appropriation of \$15,000 for this purpose, which has been paid without interruption from year to year. And it is to make a grateful acknowledgment of this year's payment that the

subject is now being referred to here.

The first trial of an invited class was made in the Hall of Architecture, where they found a visible chapter in the art of building from the most ancient relic of Chaldean civilization down to the end of the Italian Renaissance. When the children carried home the story of their enchanted visit, their parents began to come and see for themselves; and it was then that the Institute entered upon its participation in the scheme for adult education, a movement which has since stamped itself on the country at large.

It will be interesting to add that many other schools outside of Pittsburgh now send their children to the Carnegie Institute for these personally conducted reviews, and almost every day the busses bring them from as far away as Johnstown, Cumberland, Wheeling, and Youngstown.

The attendance of students in these receptions, running from the primary school to the university classes, now reaches seventy-nine thousand a year; so that the Board of Education may take great satisfaction from the fruit that it has planted, and is continuing to plant, in our Garden of Gold.

Contributions continue to come from interested alumni for the Carnegie Tech \$4,000,000—\$8,000,000 endowment, whereby the Carnegie Corporation of New York will contribute the sum of \$8,000,000 in 1946 if Tech friends have raised \$4,000,000 by that time. Since we reported last month, the Alumni Federation has sent in a gift for \$50, which came from the following members of the group: Alfred D. Beeken Jr., the Gary Clan, Katherine Shuman, Charlotte Smith, and Lt. and Mrs. D. L. Trautman.

The Chemistry Department Research Fund, which is being raised by friends of the department, has also received for

the 1946 Endowment Fund, the sum of \$25 from an anonymous giver.

Other recent gifts which have come in to the Federation from former graduates who are anxious to see Carnegie Tech make its goal six years from now include \$6 from David G. Edwards, Ruth A. Gustafson, August Striegler, and William S. Wright. The sum of \$138 has been contributed by Elizabeth M. Bader, Walter J. Blenko, Rose Marie Grentzer, Benjamin and Sidney Hantman, George H. Ikola, Francis G. Kredel, Mrs. K. W. Krummell, Charles A. Watkins, J. P. Fleming, and Margaret Lappe Wheeler. And there are also gifts totalling \$16 from John C. Geffel, James K. Hess, Everett E. Kerns, W. A. McDowell, and Marguerite Spilman.

Gifts amounting to the sum of \$126 have been contributed to the 1946 Endowment Fund from the following: G. G. Kelcey, the New York Clan—Women's Division, R. L. Bussey, Jane Kayle Miller, William B. Skinkle, and Helen Vernon.

All these contributions noted above, \$15,000 for the Carnegie Institute and \$361 for the Carnegie Tech Endowment, added to the total sums acknowledged in the Garden of Gold for November 1940 bring the total of cash gifts for the work of the entire institution since the inauguration of THE CARNEGIE MAGAZINE in April 1927 to the following amounts: for the Carnegie Institute, \$1,297,731.49; for the Carnegie Library of Pittsburgh, \$40,629.12; and for the Carnegie Institute of Technology, \$230,745.68 for operation and equipment, and for the 1946 Endowment Fund, \$1,590,911.27; making a grand total of cash gifts of \$3,160,017.56. There is still \$2,409,088.73 to be raised so that Tech will receive her two dollars for one from the Carnegie Corporation of New York.

#### THE TALENTS OF OTHERS

Worth begets in base minds, envy; in great souls, emulation.

—FIELDING

## SHRINKING INCOME

[From President Church's Annual Report]

I AM aware that the trustees are sharing with me the anxiety that comes to us all from the continued depreciation in the income value of our investment securities. From a comfortable income return of something over five per cent on these investments a few years ago, the later issues of bonds in which we have placed the greater part of our endowment funds have steadily fallen in interest rates until they seem to be approaching a point around three per cent, and even lower than that. When we take our investments for the Carnegie Institute and the Carnegie Institute of Technology together, representing an endowment fund of approximately \$26,000,000, and find ourselves face to face with this vanishing income, it is apparent that the possibility of operating these institutions on the liberal standard of past years is subject to anxious question. Carnegie Tech has met this imperative necessity, in part, by an increase in its tuition fees, but the Carnegie Institute has no similar means of increasing its cash returns. The trustees, therefore, who have been appointed by the Board to act with me in the appropriation of funds to cover our operating expenses have in the past two years accepted the hard task of cutting the appropriations for the various departments as follows: In 1939 about \$17,000, and for 1940 a further reduction of \$20,000, making about \$37,000 reduction in two years. With a large portion of the foreign world in the destructive flames of war, it is not improbable that these harsh financial conditions will enlarge themselves until further reductions will come [for 1941], with the result of impairing the efficiency of the whole Carnegie Institute in its relations with the public at large. While we must all cherish our hope and courage in this situation, I have thought it prudent to call the attention of the entire Board to the matter as it presents itself at this moment.

# "BEHOLD THE MIGHTY DINOSAUR"

By J. LeROY KAY

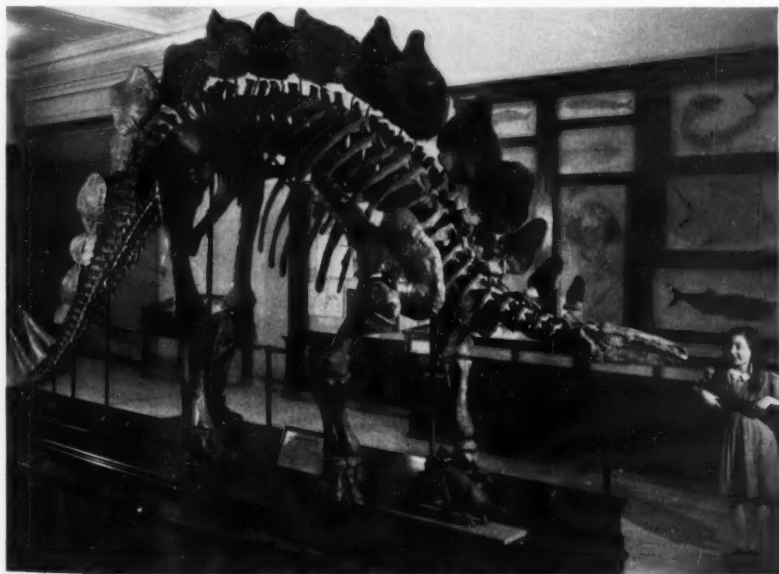
*Acting Curator of Vertebrate Paleontology, Carnegie Museum*

THERE have been placed on exhibition in the Carnegie Museum's Hall of Paleontology three new herbivorous dinosaurs—*Stegosaurus*, *Camptosaurus*, and *Dryosaurus*. They are all of the Jurassic period—a time during the Mesozoic Era when the sea invaded great areas of Europe, Asia, and Western North America. Land dinosaurs abounded, and the Jurassic seas were ruled by marine reptiles. Robust giants of the past roamed our own Far West, some walking on all four legs and others upright on their hind feet.

Even though their habitat and period were the same—the West in the Mesozoic Era—the three newly installed specimens are quite different in form and habits. They were brought in to the







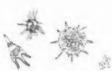
Carnegie Museum by a field expedition to the Morrison formation of the Dinosaur National Monument in north-eastern Utah—a locality that is at present a semiarid district on the south flank of the Uinta Mountains, an east-west range connecting the Rocky and Wasatch group. The fossils were found in a coarse sandstone that was deposited as sand in an ancient river that flowed from west to east when the dinosaurs were living there, long before the present mountains in that district were formed.

Along this ancient river and adjacent swamps grew cycads, ferns and fernlike plants, and huge horsetail rushes like the rushes growing in the swamps of South America today. The flowering,



STEGOSAURUS OR ARMORED DINOSAUR

# GEOLOGIC TIME DIVISIONS

ERAS	PERIODS	DURATION IN YEARS	DOMINANT LIFE	CHARACTERISTIC LIFE
CENOZOIC	RECENT	10,000	MAN    MAMMALS	
	PLEISTOCENE	1,000,000		
	PLIOCENE	6,000,000		
	MIOCENE	12,000,000		
	OLIGOCENE	16,000,000		
	EOCENE	20,000,000		
	PALEOCENE	5,000,000		
MESOZOIC	CRETACEOUS	65,000,000	REPTILES	
	JURASSIC	35,000,000		
	TRIASSIC	35,000,000		
PALEOZOIC	PERMIAN	25,000,000	AMPHIBIANS	
	CARBONIFEROUS	85,000,000		
	DEVONIAN	50,000,000		
	SILURIAN	40,000,000	FISHES	
	ORDOVICIAN	85,000,000		
	CAMBRIAN	70,000,000	INVERTEBRATES	
PROTEROZOIC	UPPER PRECAMBRIAN	650,000,000	PRIMITIVE MULTICELLULAR LIFE	
ARCHEOZOIC	LOWER PRECAMBRIAN	650,000,000	UNICELLULAR LIFE	

plan  
ther  
bees  
flow  
roac  
was  
man  
form  
H  
and  
tons  
seun  
a m  
clim  
char  
epid  
com  
Each  
the  
that  
time  
sea  
men  
feet  
oce  
as s  
are  
the  
man  
inve  
ced  
the  
form  
in v  
At  
inhe  
don  
was  
and  
T  
Age  
the  
sed  
bein  
din  
wer  
the  
tain  
yea  
the  
san  
din  
wer



plants had not yet appeared, therefore there were no butterflies, moths, or bees—the insects adapted for feeding on flowers—but there were beetles, cockroaches, and dragonflies. The climate was warm and mild; and small archaic mammals, the ancestors of the modern forms, were appearing.

Here lived the dinosaurs, both large and small, of which the petrified skeletons may be seen in the Carnegie Museum. What caused their extinction is a matter for debate. We may suggest climatic changes causing drouth or food changes; then there is the thought of epidemic, or overspecialization, or the competition of the oncoming mammals. Each student has his own pet theory on the subject. We do know, however, that the country has changed many times since the dinosaurs lived. The sea encroached upon the land, and sediments to the thickness of thousands of feet were deposited on the floor of the ocean. These sediments are now known as shales and limestones, and in them are preserved the fossilized remains of the inhabitants of this sea, such as marine reptiles, fishes, and shells of invertebrates. As the sea slowly receded again, due to the gradual rise of the land, great marshes and deltas were formed, a return to conditions like those in which the Jurassic dinosaurs lived. At this time a new type of dinosaur had inherited the earth, such as the Trachodons, or duck-billed dinosaurs. This was at the close of the Cretaceous period and the Mesozoic Era.

This close of the Mesozoic Era—or Age of Reptiles, as it is called—marks the beginning of the upthrust of these sediments that for millions of years were being deposited on top of the Morrison dinosaurs. The various layers or strata were pushed up at steep angles to form the sides of the present Rocky Mountain series. Again it took millions of years for the agencies of erosion to wear the mountains down until the river sands, now sandstones, in which the dinosaur skeletons had been buried, were again exposed.

Here, in 1909, at an elevation of five thousand feet above sea level, the Carnegie Museum began the excavation of the largest deposit of Jurassic dinosaurs ever discovered. During the thirteen years that the Carnegie Museum has worked this deposit, approximately seven hundred thousand pounds of fossils in the rock have been shipped to the Museum. By a painstaking and laborious process many of these fossil skeletons and bones have been freed from the matrix that encased them, and are now on exhibition. Others have been sent to various institutions in exchange for parts needed here. And still the task goes on.

Of the many kinds of dinosaurs found, the oddest of the lot is the Stegosaurus, or armored dinosaur, which is twenty-one feet long, stands nine and one-half feet at its highest point, and must have had at least the robust weight of the largest of living elephants. Unlike the Camptosaurus and Dryosaurus, it was a quadruped; and although the massive front limbs were short, it walked on all four feet. The hind limbs were long, giving the vertebrae of the back a steep slope toward the front. This characteristic, with the backward sloping tail, gave the animal its sharply arched vertebral column. The front parts of the jaws of the Stegosaurus were toothless, and what small teeth it did have in the back of its mouth could not be seen from the outside at all.

The most conspicuous peculiarity of this bizarre and fantastic animal, however, is the structure of large bony plates rising massively along the spinal column and terminating in large bristling spines or spikes more than two feet long near the end of the tail. This dermal armor is arranged in two alternating rows projecting upward and slightly outward. On the sides of the plates are well-developed blood-vessel impressions indicating that they were covered with closely fitting skin. In the region of the throat, at least, there were closely packed, small, rounded ossicles protecting that part of the body.

# THE CARNEGIE MAGAZINE

Another very unusual characteristic of the Stegosaurus was its central nervous system. The brain was very small; in fact, the smallest ever known relative to the size of the animal. Passing backward along the neural canal to the sacrum, one finds an enlargement many times that of the brain cavity: probably a co-ordinating center for the control of the massive hind parts of the body. As Bert Leston Taylor says in "The Dinosaur":

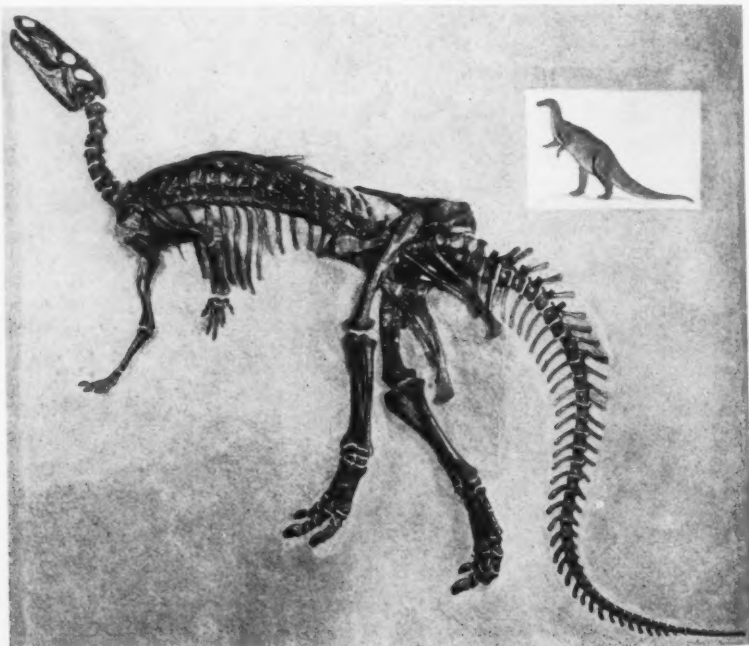
Behold the mighty dinosaur,  
Famous in prehistoric lore,  
Not only for his weight and strength  
But for his intellectual length.  
You will observe by these remains  
The creature had two sets of brains—  
One in his head (the usual place)  
The other at his spinal base.  
Thus he could reason a priori  
As well as a posteriori.  
No problem bothered him a bit:  
He made both head and tail to it.

So wise he was, so wise and solemn,  
Each thought filled just a spinal column.  
If one brain found the pressure strong  
It passed a few ideas along;  
If something slipped his forward mind  
'Twas rescued by the one behind;  
And if in error he was caught  
He had a saving afterthought.  
As he thought twice before he spoke  
He had no judgments to revoke;  
For he could think without congestion,  
Upon both sides of every question.

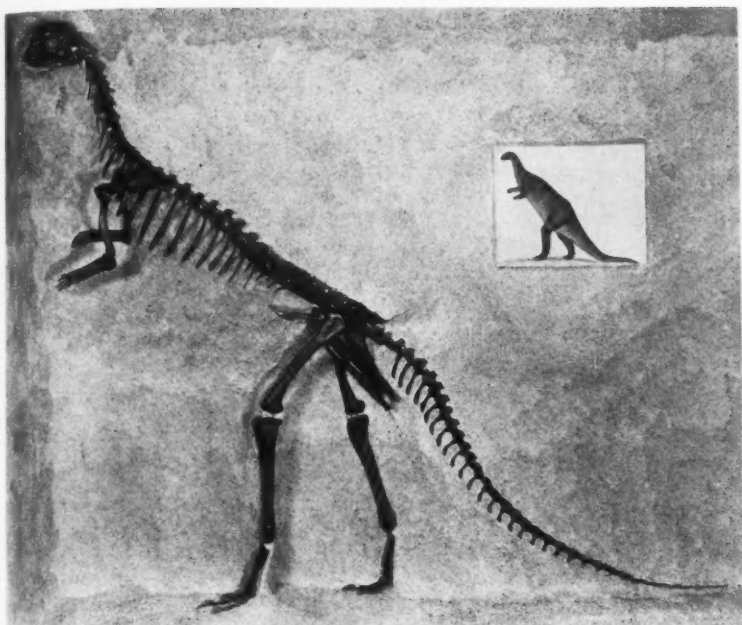
Oh, gaze upon this model beast  
Defunct ten million years at least.

The structure of the skeleton of the Stegosaurus would indicate a stout, cumbersome, slow-moving animal with a very low intelligence, whose only means of defense in a world of creatures often three times its size was the bony covering on its body and probably its spiked tail.

Although the Camptosaurus belongs to the same order of dinosaurs—Omi-



CAMPTOSAURUS OR FLEXIBLE DINOSAUR



DRYOSAURUS OR BIRDLIKE DINOSAUR

thischia—as the *Stegosaurus*, it is quite unlike that genus primarily in that it retained its primitive bipedal characteristic of walking mostly on its two hind feet and did not have the bony covering as did the *Stegosaurus* and several of its relatives. *Camptosaurus* is one of the best known of the small Jurassic dinosaurs, for there are several skeletons in various museums, and its near counterpart, the *Iguanodon* of Europe, was among the first dinosaurs to be studied.

Although a bipedal form, it probably used its front limbs for support when feeding because the front legs are proportionately longer and more strongly built than most bipedal dinosaurs of equal size. The teeth were spatulate with serrated margins, and, like most reptiles, as one set wore away others took their place; so that this dinosaur always had a set of teeth during its lifetime. Like the *Stegosaurus*, they were

confined to the back part of the jaw, the front being toothless but presumably covered with a horny beak. The tail was rather long and probably was used as a balancing organ or the third leg of a tripod.

Of the three specimens included here, the *Dryosaurus* is the least known, and what is known is only from partial skeletons. Even though its teeth and beak indicate a browsing habit, many of the characteristics are those of a bird. *Dryosaurus* was undoubtedly a very agile animal and had much less trouble eluding its enemies, the carnivorous reptiles, than did the cumbersome *Stegosaurus*. The Carnegie Museum specimen, exhibited in the rock in which it was found, has the missing parts restored after other individuals. While it is not complete, it adds considerably to our knowledge of this form, which is one of the most streamlined and graceful of the Jurassic dinosaurs.



## "THE PLAY'S THE THING"

*A Review of Paul Green's "The House of Connelly"*

BY HAROLD GEOGHEGAN

*Professor of the History of Art, Carnegie Institute of Technology*



FOR a good many years now Paul Green has ranked as the most important of our "regional" playwrights. He has found his subjects and his characters in his native state of North Carolina, which he knows so well and about which he feels so intensely. The power and originality and the very special flavor of his work was recognized early in his career. He received the Pulitzer Prize for his play entitled "In Abraham's Bosom," and aroused the enthusiasm of critics of the importance of Joseph Krutch, Stark Young, and Brooks Atkinson—a trio which no one could accuse of being too easy to please. The general theater-going public has been less enthusiastic. At least they have not shown their enthusiasm by flocking in great multitudes to his plays. I saw "The House of Connelly" when it was first performed by the Group Theater—which was at that time far from being the accomplished group of players that it has since become—and I remember very little about it except some remarkable examples of miscasting and two fine individual performances: the Big Sis of Rose McClendon and the Mrs. Connelly of Mary Morris.

After I had seen the performance at the Little Theater last month, I read the play. I found it far more impressive in print than I had on the stage. The heavy atmosphere of rot and decay and the picture of the disintegration of a

society that was once, at least on the surface, gracious and beautiful are suggested with great power. Some of this atmosphere is conveyed by the lengthy stage directions and the vivid descriptions of the characters. For instance: "A murky cloud creeps up the sky, lighted along the edge by a bluish tinge from the hidden sun; the air is raw and has a feel of snow in it." Or this picture of Big Sis and Big Sue: "They are huge creatures, sexual and fertile, with round moist roving eyes, and jowled faces, smooth and hairless as a baby's. The mark of ancient strength and procreation still remains in their protuberant breasts and bulging hips." These examples suggest the medium of the novel rather than that of the drama, for such descriptions, however evocative on the printed page, present to the scene designer and the actor problems almost impossible of solution, at least in the theater as it now exists. The half-symbolical figures of the two old Negro women who brood over the play like dark agents of destiny become on the stage a pair of garrulous—and frequently unintelligible—old colored women. The author seems to need a vaster space and more time than the modern stage with its two, or two and a half, hours' performance gives him.

"The House of Connelly" is concerned with an impoverished Southern family of that name, once rich and powerful, but now living on the memories of its past greatness. Connelly Hall is falling into ruin, the land is uncared for and yields nothing, the plantation Negroes are idle and shiftless, and the family—Mrs. Connelly; her brother-in-law, "Uncle Bob"; a son, Will; and two aging and unmarried daughters—is too

busy in  
pearanc  
matters  
Artemu  
Connelly  
his sins  
Unde  
young  
tenant  
feeble a  
ways  
above  
easiest  
riage w  
at the  
"poor  
name.  
out hi  
underl  
Connel  
for Mr  
herself  
Uncle  
death.  
house  
final  
one, th  
upon  
scene

busy in a pitiful attempt to keep up appearances to do anything to improve matters. Over it all, like another Artemus, hovers the spirit of old General Connelly, with his tyrannic charm and his sins.

Under the influence of Patsy Tate, the young and energetic daughter of a tenant farmer, Will Connelly makes a feeble attempt at rescue. Patsy has always "wanted land . . . wanted land above all things," and feels that the easiest way to get it would be by marriage with Will. The family is horrified at the idea of a Connelly marrying a "poor white" and disgracing their name. In an exciting scene Will speaks out his mind on the rottenness that underlies the foundations of the house of Connelly. The spoken truth is too much for Mrs. Connelly, who has known it herself, and this, with the shock of Uncle Bob's suicide, brings on her death. Will marries Patsy, but the house of Connelly is doomed. In the final scene, a particularly gruesome one, the two old Negro women steal up upon Patsy and strangle her. This last scene does not appear in the published

version of "The House of Connelly," nor was it used in the New York production of 1931. A "happy" ending takes its place: Will, with Patsy in his arms, murmuring, "With you I'll go on . . . I'll go on!" Mary Morris, who directed the production at the Little Theater, has gone back to what I am told was the original ending. Horrible as it is, it is undoubtedly the better one. The note of doom is sounded too often and too loudly during the play to admit of a happy ending. "All the old Connellys have doomed us to die . . . we're paying for their sins." No strong young blood is to invigorate the dying race.

The directing of Mr. Green's play must have been extremely difficult. Even if the director had a wide range of professional actors to choose from for the parts—as regards type, accent, and color—the task of presenting a play which depends so much on atmosphere and mood, and which takes place in such a specialized milieu, would have been a difficult one. How much more difficult it must have been to get a good performance from a group of average



STUDENT ACTORS IN A SCENE FROM "THE HOUSE OF CONNELLY"

students who had no special aptitude, experience, or background for this type of play. Miss Morris is certainly to be congratulated on the result.

I saw "The House of Connelly" first at the Friday matinee and later at an evening performance. Of the two casts, the matinee one struck me as rather the better. The part of Uncle Bob, the "family satyr" who must be a scholar and a gentleman and at the same time a disgusting old man, might tax even the resources of a Stanislavsky. The young actor who tackled the part in the matinee performance is as yet no Stanislavsky, but he gave a very well-considered account of an extremely difficult part. Both the Patsys played with a sort of blunt simplicity which was effective and a good contrast to the neurotic Connellys. The Will of the earlier cast was, I think, nearer to the author's conception of the part. You felt that he was doomed from the beginning and that he knew it and was not going to do much about it. I liked both pairs of sisters, especially the Geraldine of the matinee; and in the same cast there was an amusing, if slightly caricatured, sketch of a gushing Southern belle. Both the Mrs. Connellys were good. The four ladies who played the ancient sibyls struggled manfully with their parts and piled the Negro dialect on so thick that I had some difficulty in understanding them. The Big Sis of the evening cast had what sounded to me like a very authentic accent. They were, on the whole, amusing rather than grim. Some of the minor Negroes in their make-up recalled the days of Mr. Tambo and Mr. Bones.

John Blankenchip provided a setting for the opening scene that brought a round of applause from the audience. He had almost as much in it as the author asks for—and that is plenty. There were rail fences, unkempt hedgerows, fennel weeds and poke stalks, sassafras bushes and stack poles—in fact, everything except the "raw air with the feel of snow in it." It looked pretty good, too. The dilapidated dining room of Connelly

Hall by Milton Howarth was a handsome thing to look at and, like Mrs. Kimberly's costumes, exactly in the mood of the play.

## SCHEDULE OF SPECIAL EXHIBITIONS

### DEPARTMENT OF FINE ARTS

1941

The following is a partial schedule of special exhibitions in the Department of Fine Arts for 1941:

JANUARY 3 TO FEBRUARY 14

PM Exhibition, The Artist as Reporter.

JANUARY 9 TO FEBRUARY 16

Exhibition of Murals, Paintings, Drawings and Prints by Candido Portinari of Brazil.

JANUARY 14 TO FEBRUARY 28

Exhibition of American Sculpture.

FEBRUARY 13 TO MARCH 12

Thirty-first Annual Exhibition of the Associated Artists of Pittsburgh.

MARCH 3 TO MARCH 31

Prints by Georges Rouault.

MARCH 17 TO APRIL 13

Exhibition of Murals, Paintings, and Drawings by Pablo Picasso—Forty Years of His Art.

MARCH 21 TO APRIL 20

Twenty-eighth Annual International Salon of Pictorial Photography.

MARCH

Exhibition of American Provincial Paintings.

APRIL 3 TO MAY 4

Nineteenth International Water Color Exhibition Circuited by the Art Institute of Chicago.

APRIL 14 TO MAY 26

Modern Mexican Paintings.

APRIL 17 TO JUNE 1

One Man Exhibition by Pittsburgh Artist—Everett Warner.

MAY 12 TO JUNE 1

Scholastic National High School Art Exhibition.

JUNE 12 TO JULY 27

Paintings by Selected Pittsburgh Artists.

### CHOOSING A PATH

It does not matter much what branch of effort your tastes or judgment draw you to, the one great point is that you should be drawn to some one branch. Then perform your whole duty in it and a little more—the "little more" being vastly important.

—ANDREW CARNEGIE



## THE DEFENSE PROGRAM AND THE LIBRARY

THE government's defense program has brought with it an increased demand in the Carnegie Library of Pittsburgh for up-to-date technical and vocational books. Men and women preparing themselves for skilled jobs in the defense industries are either enrolling in full-time industrial training courses in trade schools throughout the city to learn new trades or to brush up on skills they have almost lost during the depression years. And they are supplementing their education with readings from the latest and best books on their particular subject. Among those most often requested are books on airplane engines, blueprint reading, electricity, machine-shop practice, and patternmaking.

This renewed interest in craftsmanship among the workers of the city is particularly noticeable in localities near the training centers, and the branch libraries at Wylie Avenue, South Side, and Lawrenceville are meeting this popular demand for specialized reading matter with the same definite attention that the Central Library in Schenley Park is giving it from day to day.

The national defense program has also stimulated interest in military science and tactics, and in American history. In order to meet these various needs, there has been a curtailment of book funds from other fields to technical books, and several copies of five hundred of the latest and best texts have been purchased. The American Library Association is also assisting by preparing a number of special lists of recommended books, and the state library association has appointed a defense committee to co-ordinate the additional work required.

It will be seen that the Carnegie Library is making use of all its available resources to co-operate to the fullest extent in preparing the mind of America for an adequate defense against the threat of war.

## A RECENT MUSICAL ACQUISITION

THE Music Division of the Carnegie Library has recently acquired a page from a rare fifteenth-century manuscript of a book of musical responses, or antiphones. This piece of devotional verse sung as part of the liturgy is known as an antiphonal leaf. It is early Italian and is interesting historically because it illustrates an important step in the recording of music. The vellum manuscript, now on display in the Music Room, is enclosed in a double glass frame, so that both sides of the leaf may be seen.

The notation, on a four-line staff, is in neumes—a word that comes from the Greek and means a "nod" or "sign." This is a very appropriate name for the symbols out of which our modern notation system of musical notes and symbols grew. Intended originally as a kind of musical shorthand and used merely to refresh the memory of those who had previously learned the melodies by ear in the singing schools, the neumes do not represent actual intervals but merely suggest the melody.

The antiphonal, or antiphonary, properly refers to the Roman Catholic Church's collection of traditional plain-song responses, but is more generally used now to designate the book containing the traditional plainsong of the ordinary service in distinction from the gradual, which contains all the plain-song for the service of the Mass.

## THE REAL CONQUEST

Culture, if it means anything, means effectively coming to terms with life as it exists, seeking out its riches, refining the gold from the dross. We shall get forward toward that goal faster if we adapt our hopes to the rhythm of history. The troubles in the world today are neither the worst nor the least that men have ever faced. War and poverty, ignorance and disease, are old foes—and stubborn. We can conquer them by no lightning campaign, as once we dreamed, but only by patience and persistence.

—HENRY M. WRISTON



## CHRISTMAS

**I**N that magnificent story of the birth of Christ, St. Luke tells us of the visit of the angel to the shepherds who were abiding in the field and keeping watch over their flocks. These humble men, while thus engaged, were made suddenly aware of the glory of the Lord that shone round about them. As they had walked away from the village of Bethlehem to take their night vigil in the field, they were discussing the gossip of the main street—how an unknown man and his wife had applied for a room at the little hotel; and although it was perceived that the woman was great with child, the innkeeper unfeelingly sent these needful guests to the stable; and there the most distinguished birth of all human time occurred. And as the shepherds talked of this story, they found themselves irresistibly impressed by a feeling of strangeness and mystery, until they were sore afraid.

And then the angelic voice said: "Fear not: for, behold, I bring you good tidings of great joy, which shall be to all people. For unto you is born this day in the city of David a Saviour, which is Christ the Lord. And this shall be a sign unto you: Ye shall find the babe wrapped in swaddling clothes, lying in a manger."

As the angel finished his statement to the shepherds, the whole sky was illuminated by a radiant splendor of effulgent light, such as no man had ever seen before, and the air was filled with a

multitude of the heavenly host praising God and singing in the holiness of their joy: "Glory to God in the highest, and on earth peace, good will toward men."

When the angels had gone away into heaven, the shepherds, divinely chosen to give this testimony, went straightway to the inn and found Mary, and Joseph, and the babe lying in the manger. The name of the child was Jesus, and they bore witness of it to all the people of the countryside.

The parents took the child to Jerusalem, where they observed the ceremonies of purification as laid down in the law of Moses, and afterward returned to their home in Nazareth.

When Jesus was twelve years old they took him again to Jerusalem, where he dropped out of their sight until they found him seated in the midst of the priests and elders, "both hearing them, and asking them questions."

They returned again to Nazareth, where it is related that Jesus "increased in wisdom and stature, and in favor with God and man." The boy took part with his family in the work of the carpenter shop, and many a dwelling in the village bore the repairing marks of his hammer and saw.

There is a notable painting by Holman Hunt called, "The Sign of the Cross." This picture shows Jesus and his mother in their lowly home; she kneeling before the chest which contained the birthday presents that were brought to the manger at Bethlehem, and the boy stretching his arms in the

glad fatigue of his work. But at that moment the sun has broken through the window, shining full upon the young carpenter's outstretched arms, and Mary beholds upon the floor, with a sudden shrinking of anguish, the shadow of the cross, and wonders whether this is the foretelling of his death.

Jesus soon became aware that he possessed attributes that were far beyond those of his present setting. He had been tempted of the devil—which is the spirit of evil that cometh to every man—who offered him an unexampled career of worldly power, but all these promised honors he rejected with scorn; and then, when he was thirty years old, and able to overcome every indulgence of prodigal living, he began his mission before the world. Naturally, his first thought was of the church. Followed by his family, he went into the synagogue at Nazareth, where he was noted as a daily worshiper; and began to preach his first sermon. The first sermon of any earnest young preacher is always an event of great moment to himself and his friends. It was so in this case. They gave him the book, which was the Old Testament; and Jesus took his text from Isaiah, the sixty-first chapter and first verse, speaking to them in the ancient Aramaic dialect of the Hebrew language:

"The spirit of the Lord is upon me, because he hath anointed me to preach the gospel to the poor; he hath sent me to heal the brokenhearted, to preach deliverance to the captives, and recovering of sight to the blind, to set at liberty them that are bruised, to preach the acceptable year of the Lord."

That towering phrase, "He hath sent me to heal the brokenhearted," caught hold of his mind and called forth all the eloquence of his spirit. In developing his theme he could not avoid a severe censure of the complacent church, its ministers, and its congregation. It is a terrible thing to attack the church. But who, among those present, was doing anything to heal the brokenhearted? Who was protesting

against the sufferings of Rome's prisoners in those concentration camps? Who was making any effort to restore sight to the self-deceived victims of prejudice and ignorance? No voice like that had ever been heard in a synagogue before. But he had convicted them all of indolence and hypocrisy. He told them they were righteous and despised others. They were making long prayers and neglecting the widows and orphans of the community. The Pharisees who sat before him, proud, rich, and haughty, and devoid of mercy, resented his plain speaking. As he drove inward his description of them as whited sepulchres, all marble outside and full of dead men's bones within, their indignation rose to wrath, and wrath to fury. The outraged congregation became a mob. At last they thrust him out of the synagogue, and drove him to the outskirts of the town, and even sought to throw him over the steep hillside; but he made his escape, and went into Capernaum and continued his preaching, without relinquishing a jot or tittle of the high standard he had set for his gospel. From that day forward he performed the great burden of his work outside the walls of the churches, meeting the people in the green fields and beside the running waters. But is there, in the history of the world, a first sermon that brought upon its speaker such a devastating mark of failure and disapprobation as this one?

He found two men whose characters gave him an illustration of his view of life: one who stood up and thanked God he was not as other men, "for," said this man, "I fast twice in the week, and I give tithes of all I possess." The other, "standing afar off, would not lift up so much as his eyes unto heaven, but smote upon his breast, saying, God be merciful to me a sinner." And the comment of Jesus was this: "Every one that exalteth himself shall be abased; and he that humbleth himself shall be exalted."

That is all there was to the Gospel of Christ, which men have since made

# THE CARNEGIE MAGAZINE

## CARNEGIE INSTITUTE OF TECHNOLOGY

ROBERT ERNEST DOHERTY, President  
 WEBSTER N. JONES, Director, College of Engineering  
 GLENDINNING KEEBLE, Director, College of Fine Arts  
 CHARLES WATKINS, Director, Margaret Morrison Carnegie College  
 \*R. M. IHRIG, Director, Division of General Studies  
 BERYL E. WARDEN, Director, Division of Student Personnel and Welfare  
 E. K. COLLINS, Registrar  
 RALPH MUNN, Director, Carnegie Library School  
 FRANCES H. KELLY, Associate Director  
 H. R. PATTON, Controller

\*Deceased.

so difficult to understand. It was a simple inauguration of the Kingdom of Heaven, which Jesus assured them should have its seat—not in Heaven—but in the human heart, in every man's heart.

From that day to this, men have wondered about this Gospel of Christ. We call the present state of society Christianity, and the world is swayed by hate and engulfed in blood. Why should men follow the Gospel of Christ? George Washington answered the question for all time, in saying this: "Without a humble imitation of the divine Author of our religion we can never hope to be a happy nation." Could it be better stated? Can we not say, freely and without cant or hypocrisy, that if the world would truly make this social system a system of Christianity, wars would cease, poverty would be abolished, and the brokenhearted would be healed? That is the spirit of Christmas which was chanted by the angel chorus on that night at Bethlehem: "Glory to God in the highest, and on earth, peace, good will toward men."

### BROTHERHOOD

Have we not all one Father, has not one God created us?

—MALACHI

## CARNEGIE INSTITUTE

SAMUEL HARDEN CHURCH, President

J. C. JEFFRIES, Auditor  
 WILLIAM A. MORTEN, Assistant Treasurer  
 MINNIE C. RANKIN, President's Secretary

### DEPARTMENT OF FINE ARTS

HOMER SAINT-GAUDENS, Director  
 JOHN O'CONNOR JR., Assistant Director  
 GUILLAUME LEROLLE, European Representative  
 ANNE K. STOLZENBACH, Secretary  
 MARGARET M. LEE, Director of Educational Work

### CARNEGIE MUSEUM

ANDREY AVINOFF, Director  
 O. E. JENNINGS, Curator of Botany and Director of Public Education  
 STANLEY T. BROOKS, Curator of Invertebrate Zoology  
 J. KENNETH DOUTT, Curator of Mammalogy  
 OTTMAR F. VON FUEHRER, Staff Artist  
 ARTHUR W. HENN, Curator of Ichthyology  
 HUGO KAHL, Curator of Entomology  
 J. LEROY KAY, Acting Curator of Vertebrate Paleontology  
 M. GRAHAM NETTING, Curator of Herpetology  
 SYDNEY PRENTICE, Draftsman  
 W. E. CLYDE TODD, Curator of Ornithology  
 I. P. TOLMACHOFF, Curator of Invertebrate Paleontology and Acting Curator of Mineralogy  
 EUGENIA MCCALLA, Secretary

### CARNEGIE MUSIC HALL

MARSHALL BIDWELL, Organist and Director of Music  
 ROY B. AMBROSE, Manager

### CARNEGIE LIBRARY

RALPH MUNN, Director  
 ADALINE BERNSTEIN, Head of Order Department  
 JAMES E. BRYAN, Head of Adult Lending Department  
 MARY E. FOSTER, Head of Schools Department  
 ELLWOOD H. MCCLELLAND, Technology Librarian  
 RUTH D. MCCOLLOUGH, Head of Catalogue Department  
 ALICE THURSTON MCGIRR, Reference Librarian  
 ARTHUR D. SCOTT, Head of Printing and Binding Department  
 ELVA S. SMITH, Head of Boys and Girls Department  
 MARTHA V. WIRTH, Executive Secretary

### DEPARTMENT OF BUILDINGS & GROUNDS

ROY B. AMBROSE, Manager  
 HATTIE W. STOUPPE, Secretary

E

ative

al Work

Director

rebrate

y

y

rebrate

logy

y

Palcon-

y

ector of

rtment

Depart-

ment

ibrarian

gue De-

arian

Binding

partment

OUNDS